

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Harold Fox and Peilin Tan Aquino on 3/26/10.

The application has been amended as follows:

- **Claim 1 (amended).** A method of detecting and quantifying trace levels of molecules containing one or more of a range of reactive species in gases or gas mixtures containing alkanes, ethene, or ethyne, said method including using an short chain alkoxyalkyl alkoxyethyl cation as the chemical ionization precursor in a selected ion flow tube mass spectrometer wherein the chemical ionization precursor does not react with the major components of air, nor with the gas or the gas mixtures containing alkanes, ethene or ethyne but reacts with the trace levels of molecules to be detected, wherein the trace levels of molecules to be detected comprises molecules containing sulfur or nitrogen heteroatoms.
- **Claim 2 (amended).** The method as claimed in claim 1, further including reacting the sample gas to be analysed with the alkoxyalkyl alkoxyethyl cation in a stream of helium in the flow tube.
- **Claim 3 (amended).** The method as claimed in claim 1, wherein the alkoxyalkyl alkoxyethyl cation is a methoxymethyl cation.
- **Claim 4 (amended).** A method of detecting and quantifying a gas sample containing trace levels of molecules containing one or more of a range of reactive species in gases or gas mixtures containing alkanes, ethene, or ethyne in a selected ion flow tube mass spectrometer comprising the steps of: producing a supply of alkoxyethyl methoxymethyl cations, mass selecting the alkoxyethyl methoxymethyl cations, inducing a flow of the alkoxyethyl

methoxymethyl cations into the inlet of a flow tube of the spectrometer in a carrier flow of helium reacting the gas sample with the ~~alkoxymethyl~~ methoxymethyl cations, analysing the reacted gas sample in the mass spectrometer, and calculating the concentration of the trace levels of molecules containing heteroatoms present in the reacted gas sample wherein the ~~alkoxymethyl~~ methoxymethyl cations do not react with the major components of air, nor with the gas or the gas mixtures containing alkanes, ethene or ethyne but reacts with the trace levels of molecules to be detected, wherein the trace levels of molecules to be detected comprises molecules containing sulfur or nitrogen heteroatoms.

- **Claims 5 and 6** are canceled.
2. **Claims 1-4** are allowed.
  3. The following is an examiner's statement of reasons for allowance: Freitas et al. (*Int. J. Mass Spec and Ion Proc*, 1998) has been determined to be the closest prior art of record. Freitas discloses the reactivity of the methoxymethyl cation with various nucleophiles (Abstract). As to independent claims 1 and 4, Freitas fails to disclose the method of reacting a nitrogen or sulfur heteroatom containing molecule with an alkoxymethyl or methoxymethyl cation in the presence of alkanes, ethane or ethyne for the purpose of determining a trace amount of the reactive, heteroatom containing molecule.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID WEISZ whose telephone number is (571)270-

7073. The examiner can normally be reached on Monday - Thursday, 7:30 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

4/8/2010

/Yelena G. Gakh/  
Primary Examiner, Art Unit 1797

/D. W./

Examiner, Art Unit 1797